



# PATENT SPECIFICATION

586,495

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## PROVISIONAL SPECIFICATION

### Improvements in or relating to Firearms

We, THE BIRMINGHAM SMALL ARMS COMPANY LIMITED, a company duly incorporated under the laws of Great Britain, of Armoury Road, Small Heath, Birmingham, and CLAUDE ALFRED PERRY, a British Subject, of the aforesaid Company's address, do hereby declare the nature of this invention to be as follows:—

The present invention is concerned with improvements in or relating to firearms and has reference in particular to small arms of the kind wherein provision is made for detachably supporting the barrel on the main body portion by means whereby a relatively quick detachment of the barrel and substitution therefor of a like barrel may be effected.

In firearms of the kind just referred to it is important that the barrel occupy its correct position with respect to the remainder of the firearm and various expedients have been resorted to for ensuring that when a barrel is being located it will occupy its desired position not only longitudinally with respect to the casing but also angularly with respect thereto so that the foresight will be correctly positioned with respect to the backsight. The necessity for quickly changing a barrel will be realised and of the various expedients hitherto made use of they are all, so far as we are aware, relatively complicated and expensive. For example in one kind of firearm the breech end of the barrel is provided with four equidistantly spaced lugs which have screw threads formed thereon and the body part of the gun which is to receive the breech end of the barrel has four similar projecting lugs on its inner periphery so that to assemble the body portion and barrel the lugs on the barrel are laced in the spaces between the lugs on the body portion and then relative rotation of the barrel and body portion is brought about to cause inter-engagement of the screw threads on the respective sets of lugs. Great care has to be taken in forming the screw threads, and particularly in accurately locating the starting points of the threads, on the lugs to give assurance that when fully tightened the barrel is properly located

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and this naturally adds to the cost of manufacture.

It is accordingly one of the various objects of the present invention to provide an improved means of detachably supporting and locating a barrel of a firearm on the body or casing thereof.

The above and other objects together with the several features of the present invention will become apparent from a consideration of the following description of one convenient construction of firearm provided by the invention and illustrative thereof; it is however clearly to be understood that this construction has been selected for description merely by way of exemplification of the invention and not by way of limitation thereof.

In the said illustrative construction the breech end of the barrel has three distinct parts of smaller diameter than the diameter of the main body portion of the barrel. The part contiguous to the main body portion is of the same diameter as the extreme end part whilst the intermediate part is yet of smaller diameter than the other two parts. Thus there are provided three shoulders on the breech end of the gun namely the one formed adjacent the main body portion of the barrel and two formed by the groove set up by reason of the intermediate and further reduced part of smallest diameter. This arrangement can conveniently and easily be attained at one handling of the barrel during the usual turning operation thereon. On the underside of the extreme end part is formed a flat surface by a milling or other suitable machining operation.

The end of the casing which is to receive the breech end of the barrel is of a diameter slidably to receive the reduced end parts of the barrel and the shouldered portion formed at the junction of the main body portion of the barrel with the contiguous reduced part is adapted to contact the end face of the casing. The part of the casing occupied by the said intermediate part of smallest diameter has its upper portion removed and replaced by a strap or stirrup which is of a sufficient size

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to lie in the groove formed by this part. This strap is conveniently arcuate in shape and when in position its outer surface conforms to the general shape of the outer surface of the casing. The strap is pivoted to the casing by means of a pivot pin which passes through a hole in the lower end portion of one side thereof which end portion has two faces formed thereon which are relatively inclined at an angle of some 90 degrees. When the strap is in operative position the free end of an arcuate leaf spring, anchored to the body portion, bears against one of said faces to maintain the strap in position. At its free end portion the strap has an outwardly and downwardly projecting finger-piece by means of which the strap may be moved about the pivot pin away from the groove in the barrel and in such movement the corner between the two angled surfaces on the strap will pass beyond the dead-centre position with respect to the leaf spring and the latter will in consequence force the strap to its open position and maintain it in such position by bearing against the second surface.

From what has been stated so far it will be appreciated that the barrel will be maintained in longitudinal position with respect to the casing by the strap and that while the leaf spring arrangement provides a convenient means for locking the strap in position any other suitable form

of locking means may be provided. In order to prevent relative rotation of the barrel and casing and to enable the desired angular position of the barrel with respect to the casing readily to be determined a transverse pin is located in the casing in such a position as to lie under but in contact with the aforesaid flat machined surface on the underside of the extreme end portion of the barrel.

When it is desired to change a barrel in the illustrative construction the strap will be raised about its pivot and the barrel will be moved longitudinally away from the casing. Whilst the strap is in its raised position the substitute barrel will be threaded into the casing and the transverse pin by engagement with the flat surface on the extreme end part of the barrel will determine and thereafter maintain the relative angular position of the barrel and casing. The barrel will be threaded into the casing until the shoulder thereon formed at the junction of the main body portion and the contiguous reduced part engages the end face of the casing and then the strap will be lowered into position in the groove formed by said intermediate to lock the barrel against longitudinal movement.

Dated this 30th day of October, 1944.

S. CLARK,  
Chartered Patent Agent.

## COMPLETE SPECIFICATION

### Improvements in or relating to Firearms

We, THE BIRMINGHAM SMALL ARMS COMPANY LIMITED, a company duly incorporated under the laws of Great Britain, of Armoury Road, Small Heath, Birmingham, and CLAUDE ALFRED PERRY, a British Subject, of the aforesaid Company's address, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention is concerned with improvements in or relating to firearms and has reference in particular to small arms of the kind wherein provision is made for detachably supporting the barrel on the main body portion by means whereby a relatively quick detachment of the barrel and substitution therefor of a like barrel may be effected.

In firearms of the kind just referred to it is important that the barrel occupy its correct position with respect to the remainder of the firearm and various expedients have been resorted to for ensuring that

when a barrel is being located it will occupy its desired position not only longitudinally with respect to the casing but also angularly with respect thereto so that the foresight will be correctly positioned with respect to the backsight. The necessity for quickly changing a barrel will be realised and of the various expedients hitherto made use of they are all, so far as we are aware, relatively complicated and expensive. For example in one kind of firearm the breech end of the barrel is provided with four equidistantly spaced lugs which have screw threads formed thereon and the body part of the gun which is to receive the breech end of the barrel has four similar projecting lugs on its inner periphery so that to assemble the body portion and barrel the lugs on the barrel are placed in the spaces between the lugs on the body portion and then relative rotation of the barrel and body portion is brought about to cause interengagement of the screw threads on the respective sets of lugs.

Great care has to be taken in forming the screw threads, and particularly in accurately locating the starting points of the threads on the lugs to give assurance 5 that when fully tightened the barrel is properly located and this naturally adds to the cost of manufacture.

It has also been proposed, in connection with automatic pistols, to secure the 10 barrel in position on the pistol by means of a spring-urged cylindrical bolt located within a boring in the stock of the pistol and engaging with a notch on the lower side of the barrel. In order to prevent 15 axial movement in the other direction, a fixed stop is provided on the stock. When it is desired to remove the barrel, the bolt is urged downwardly away from the barrel against the pressure of its 20 associated spring, and the barrel is withdrawn from the front of the pistol when the bolt no longer engages with the notch.

It is accordingly one of the various 25 objects of the present invention to provide an improved means of detachably supporting and locating a barrel of a firearm on the body or casing thereof.

In accordance with the invention there 30 is provided a firearm comprising a barrel member having a circumferential groove formed in the rear (i.e. breech block) and thereof, a latch member secured for 35 pivotal movement on the body of the firearm and adapted to lie in the said circumferential groove and to contact the walls thereof to lock the barrel in position on 40 the body and means, separate from said latch members, for preventing relative movement of rotation taking place between the barrel and body.

The above and other objects together with the several features of the present invention will become apparent from a con- 45 sideration of the following description given with reference to the accompanying drawings of one convenient construction of firearm provided by the invention and illustrative thereof; it is however clearly 50 to be understood that this construction has been selected for description merely by way of exemplification of the invention and not by way of limitation thereof.

In the said drawings:—

55 Figure 1 is a sectional view of the mid-portion of the illustrative firearm with the barrel in position thereon;

Figure 2 is a view similar to Figure 1 but showing the barrel detached from the 60 firearm;

Figure 3 is a section taken along the line III—III of Figure 1; and

Figure 4 is a section taken along the line IV—IV of Figure 2.

65 The said illustrative construction com-

prises a barrel 1 which at its breech end has three distinct parts 3, 5 and 7 of smaller diameter than the diameter of the main body portion of the barrel. The part 3 contiguous to the main body portion is 70 of the same diameter as the extreme end part 7 whilst the intermediate part 5 is yet of smaller diameter than the other two parts. Thus there are provided three 75 shoulders 9, 11 and 13 (Figure 2) on the breech end of the barrel 1 namely the shoulder 9 formed adjacent the main body portion of the barrel and the shoulders 11 and 13 formed by the circumferential 80 groove set up by reason of the intermediate part 5. This arrangement can conveniently and easily be attained at one handling of the barrel during the usual turning operation thereon. On the underside 85 of the end part 7 is formed a flat surface 15 by a milling or other suitable machining operation.

The end of the casing 17 which is to receive the breech end of the barrel 1 is 90 of a diameter slidably to receive the parts 3, 5 and 7 and the shouldered portion 9 is adapted to contact the end face of the casing. The part of the casing occupied by the intermediate part 5 of the barrel has 95 its upper portion removed and replaced by a strap or stirrup 19 which is of a sufficient size to lie in the groove formed by this part (see Figures 1 and 3). The strap 19 is conveniently arcuate in shape and when in position its outer surface 100 conforms to the general shape of the outer surface of the casing. The strap is pivoted to the casing by means of a pivot pin 21 (Figure 3) which passes through a hole in the lower end portion of one side thereof 105 which end portion has two faces 23, 25 formed thereon which are relatively inclined at an angle of some 90 degrees. When the strap is in operative position, as shown in Figure 1 and in full lines in 110 Figure 3, the free end of an arcuate leaf spring 27 anchored by means of a screw 29 to the casing 17, bears against the face 25 to maintain the strap in position. At its free end portion the strap 19 has an 115 outwardly and downwardly projecting finger-piece 31 by means of which the strap may be moved about the pivot pin 21 away from the part 5 of the barrel and in such movement the corner between the 120 two angled surfaces 23, 25 on the strap will pass beyond the dead-centre position with respect to the leaf spring 27 and the latter will in consequence force the strap to its open position (as shown in Figure 125 2 and in dotted outline in Figure 3) and maintain it in such position by bearing against the surface 23.

From what has been stated so far it will be appreciated that the barrel 1 will be 130

maintained in longitudinal position with respect to the casing 17 by the strap 19 and that while the leaf spring arrangement 27 provides a convenient means for locking the strap in position any other suitable form of locking means may be provided. In order to prevent relative rotation of the barrel 1 and casing 17 and to enable the desired angular position of the barrel with respect to the casing readily to be determined a transverse pin 33 is located in the casing in such a position as to lie under but in contact with the flat machined surface 15 on the underside of the extreme end portion 7 of the barrel.

When it is desired to change a barrel in the illustrative construction the strap 19 will be raised about its pivot and the barrel will be moved longitudinally away from the casing. Whilst the strap is in its raised position the substitute barrel will be threaded into the casing and the transverse pin 33 by engagement with the flat surface 15 on the extreme end part of the barrel will determine and thereafter maintain the relative angular position of the barrel and casing. The barrel will be threaded into the casing until the shoulder 9 thereon engages the end face of the casing and then the strap 19 will be lowered into position in the groove formed by the intermediate part 5 to lock the barrel against longitudinal movement.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. A firearm comprising a barrel member having a circumferential groove formed in the rear (i.e. breech block) end thereof, a latch member secured for pivotal movement on the body of the fire-

arm and adapted to lie in the said circumferential groove and to contact the walls thereof to lock the barrel in position on the body and means, separate from said latch member, for preventing relative movement of rotation taking place between the barrel and body.

2. A firearm according to claim No. 1 wherein said means for preventing relative movement of rotation between the barrel and body comprises a pin on the body for bearing against a flat surface on the rear end of the barrel.

3. A firearm according to claim No. 1, wherein the barrel has a shoulder formed thereon forwardly of said groove for location against a surface of the body.

4. A firearm according to claim No. 3 wherein said latch member comprises an arcuate shaped piece pivoted at one end to the said body portion, means being provided to maintain the latch in operative or inoperative position.

5. A firearm according to claim No. 4 wherein said last-named means comprises a leaf spring adapted to bear against one or other of two surfaces on the said piece, which surfaces are mutually inclined.

6. A barrel member adapted for use with a firearm according to claim No. 1 and comprising at the breech end thereof (a) a circumferential grooved part adapted to receive a latch member on the firearm and (b) a shoulder adapted to abut a casing member of the firearm.

7. A firearm constructed and arranged substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 29th day of October, 1945.

S. CLARK,  
Chartered Patent Agent.

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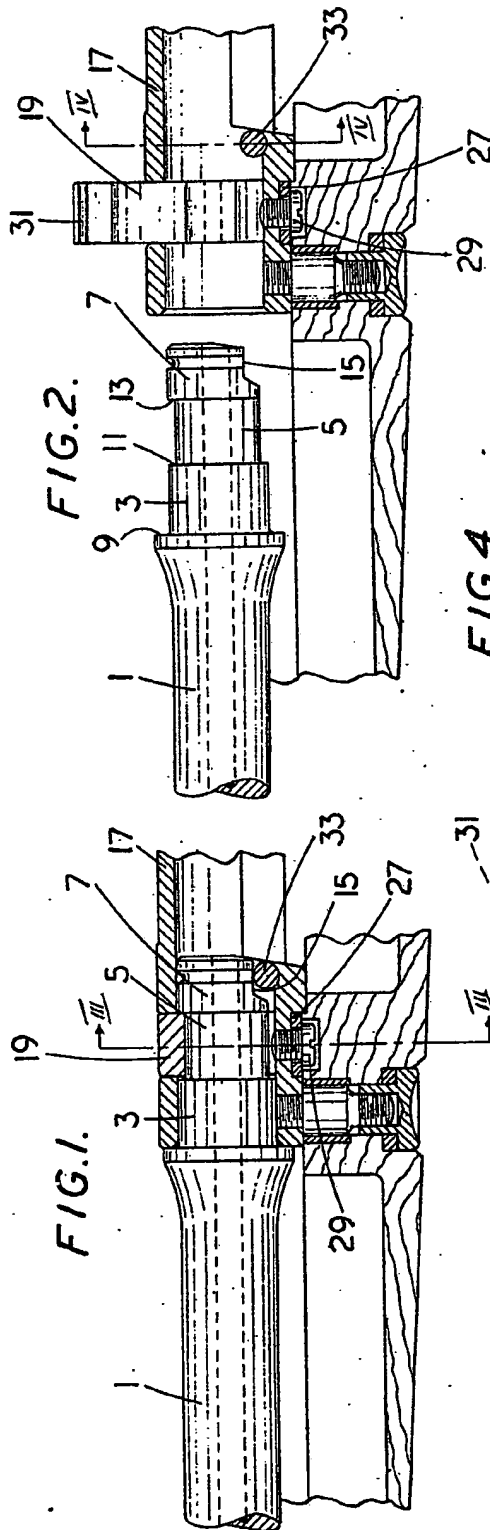
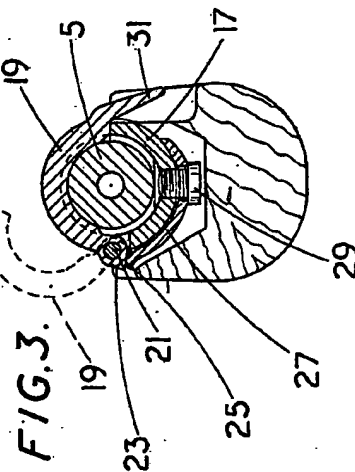
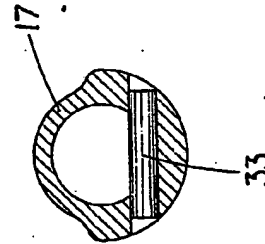


FIG. 4.



H.M.S.O. (Ty.P.)

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